

What is claimed is:

1. An interface method for a display system, comprising:  
5        outputting data including an image and a text according to an operation mode of a system; and  
         being inputted the data through an I2C interface in a standby mode and displaying the image and text on a screen, being inputted the data through a video codec in an active mode and displaying the image and text on the screen.  
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2. The interface method for the display system according to claim 1, wherein the data is displayed on the screen without passing through the video codec when the operation mode is in the standby mode.
- 15        3. The interface method for the display system according to claim 1, wherein the image is a still image, a moving picture and an animation.
4. The interface method for the display system according to claim 1, wherein the data includes an animation and/or a text to be displayed as a  
20        background of a still image or only text.
5. The interface method for the display system according to claim 1, wherein the data is transmitted to a memory, written in the memory and displayed on the screen.

6. The interface method for the display system according to claim 5, wherein transmitting and writing data in the memory includes the steps of:

outputting sequentially a byte for slave address, a byte for mode setting and a byte for pixel data when the data is burst data;

5 outputting sequentially a byte for slave address, a byte for mode setting, a byte for area start address, a byte for area end address and a byte for pixel data when the data is area data;

outputting sequentially a byte for slave address, a byte for mode setting, a byte for line address, a byte for pixel data when the data is line data; and

10 outputting sequentially a byte for slave address, a byte for mode setting, a byte for pixel address and a byte for pixel data when the data is pixel data in order to write the data in the memory.

7. The interface method for the display system according to claim 6, wherein the data is one of an image type and a text type.

8. The interface method for the display system according to claim 6, wherein a pertinent bit of the byte for slave address is set as "1" when the data is image data, and the pertinent bit of the byte for slave address is set as "0" when the data is text data.

9. The interface method for the display system according to claim 6, wherein the byte for mode setting includes an image/text classification bit, a data type classification bit and an EOFD (end of frame data) bit informing the end of frame data.

10. The interface method for the display system according to claim 9, wherein the EOFD bit is set as "1" when data of one frame is transmitted at one time.

11. The interface method for the display system according to claim 6, wherein a display type bit and an OSD memory selection bit of the byte for mode setting in the burst data outputting step are set so as to be corresponded to an access method of a main CPU (Central Processing Unit).

12. The interface method for the display system according to claim 6, wherein it is possible to update up to two image pixels by using a random byte in the pixel data outputting step.

13. The interface method for the display system according to claim 1, further including:

setting the operation (active, standby, power down) mode by using a control register or selecting a position of OSD (on screen display) regions or determining on/off of the selected OSD regions.

14. An interface apparatus for a display system, comprising:  
a main CPU (Central Processing Unit) outputting data including an image and a text according to an operation mode of a system;

a video codec being inputted the data and outputting the data by interfacing with the main CPU in accordance with the operation mode; and

a driver being inputted the data through the video codec in accordance with the operation mode or being inputted the data from the main CPU through an I2C interface of the main CPU and displaying the inputted image and text on a screen.

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15. The interface apparatus for the display system according to claim 14, wherein the data is displayed on the screen without passing through the video codec when the operation mode is the standby mode.

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16. The interface apparatus for the display system according to claim 14, wherein the driver is a LCD (liquid crystal display) driver.

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17. The interface apparatus for the display system according to claim 14, wherein the operation mode of the system is an active mode and a standby mode of a LCD system.

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18. The interface apparatus for the display system according to claim 14, wherein the main CPU transmits the data to the driver through the I2C interface when the operation mode is the standby mode.

19. The interface apparatus for the display system according to claim 14, wherein the video codec is inputted the data and outputs the data to the driver by interfacing with the main CPU when the operation mode is the active mode.

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20. The interface apparatus for the display system according to claim

14, wherein the driver is directly inputted the data from the main CPU and displays it on the screen when the operation mode is the standby mode.

21. The interface apparatus for the display system according to claim 14, wherein the image is a still image, a moving picture and an animation.

22. The interface apparatus for the display system according to claim 14, wherein the driver is inputted the data at 30 frames per second through the video codec when the operation mode is the active mode and displays the image and text of the data on the screen at the same speed.

23. The interface apparatus for the display system according to claim 14, wherein the driver is inputted the data at 5 frames per second through the video codec when the operation mode is the standby mode and displays the image and text of the data on the screen at the same speed.

24. The interface apparatus for the display system according to claim 14, wherein the data includes an animation and/or a text to be displayed as a background of a still image or only text.

25. The interface apparatus for the display system according to claim 14, wherein the driver includes:

a serial buffer temporarily storing data inputted from the main CPU; and

two OSD (on screen display) memories being alternately inputted the data through the serial buffer, storing it and parallel-constructed so as to read pre-stored

data from the other memory when the data is stored in the memory.

26. The interface apparatus for the display system according to claim  
5 25, wherein each OSD memory divides a region according to the data  
transmission mode and operates part of regions as a power save region.

27. The interface apparatus for the display system according to claim  
14, wherein 1 byte is allocated for a mode setting such as a display type, an  
10 image/text type, a data type, an OSD memory selection and an EOFD (end of  
frame data) in the I2C interfacing between the main CPU and the driver.

28. The interface apparatus for the display system according to claim  
14, wherein 3 bit image data describes 8 colors and 1 bit text data describes  
15 background data and text data in the I2C interfacing between the main CPU and  
the driver.

29. An interface apparatus for a display system, comprising:  
a main CPU (Central Processing Unit) outputting data including an image  
20 and a text in accordance with an operation mode of a LCD (liquid crystal display)  
system;

a video codec being inputted the data and outputting the data by  
interfacing with the main CPU when the operation mode is an active mode; and

a LCD (liquid crystal display) driver being inputted the data through the  
25 video codec in the active mode, being directly inputted the data from the main

CPU through the I2C interface without passing through the video codec in the standby mode and displaying the data on a screen of the LCD system.

30. The interface apparatus for the display system according to claim  
5 29, wherein the image is a still image, a moving picture and an animation.

31. The interface apparatus for the display system according to claim  
10 29, wherein the LCD driver is inputted the data at 30 frames per second through the video codec in the active mode and displays the image and text of the data on the screen of the LCD at the same speed.

32. The interface apparatus for the display system according to claim  
15 29, wherein the LCD driver is inputted the data at 5 frames per second through the video codec in the standby mode and displays the image and text of the data on the screen of the LCD at the same speed.

33. The interface apparatus for the display system according to claim  
20 29, wherein the LCD driver includes:

a serial buffer temporarily storing data inputted from the main CPU; and  
two OSD (on screen display) memories being alternately inputted the data  
through the serial buffer, storing it and parallel-constructed so as to read pre-stored  
data from the other memory when the data is stored in the memory.

34. The interface apparatus for the display system according to claim  
25 29, wherein each OSD memory divides a region according to the data

transmission mode and operates part of regions as a power save region.

35. The interface apparatus for the display system according to claim 29, wherein 1 byte is allocated for a mode setting such as a display type, an image/text type, a data type, an OSD (on screen display) memory selection and an EOFD (end of frame data) in the I2C interfacing between the main CPU and the LCD driver.

36. The interface apparatus for the display system according to claim 29, wherein 3 bit image data describes 8 colors and 1 bit text data describes background data and text data in the I2C interfacing between the main CPU and the LCD driver.

37. In a method transmitting and writing data in a memory of a LCD driver through an I2C interface of a main CPU (Central Processing Unit) of a mobile communication terminal, an interface method for a display system, comprising:

outputting sequentially a byte for slave address, a byte for mode setting and a byte for pixel data when data is burst data;

outputting sequentially a byte for slave address, a byte for mode setting, a byte for area start address, a byte for area end address and a byte for pixel data when data is area data;

outputting sequentially a byte for slave address, a byte for mode setting, a byte for line address and a byte for pixel data when data is line data; and

outputting sequentially a byte for slave address, a byte for mode setting, a



byte for pixel address and a byte for pixel data when data is pixel data in order to write the data in the memory of the LCD driver.

38. The interface method for the display system according to claim 37,

5 wherein the data is one of an image type and a text type.

39. The interface method for the display system according to claim 37,  
10 wherein a pertinent bit of the byte for slave address is set as "1" when the data is image data, and the pertinent bit of the byte for slave address is set as "0" when the data is text data.

40. The interface method for the display system according to claim 37,  
15 wherein the byte for mode setting includes an image/text classification bit, a data type classification bit and an EOFD (end of frame data) bit informing the end of frame data.

41. The interface method for the display system according to claim 40,  
20 wherein the EOFD bit is set as "1" when data of one frame is transmitted at one time.

42. The interface method for the display system according to claim 37,  
25 wherein a display type and an OSD memory selection bit of the byte for mode setting in the burst data outputting step are set so as to be corresponded to an access method of the main CPU.

43. The interface method for the display system according to claim 37, wherein it is possible to update up to two image pixels by using a random byte in the pixel data outputting step.

5 44. The interface method for the display system according to claim 37, further including:

setting the operation (active, standby, power down) mode by using a control register or selecting a position of OSD (on screen display) regions or determining on/off of the selected OSD regions.

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